State of Nevada
Technical Standards & Architecture Committee

Standard

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1.0 PURPOSE

A. This standard is intended to establish standards for acquisition of microcomputer hardware in order to:
- Prevent the acquisition of technology that is defunct or out-dated while providing stable and reliable technology for operation on the State enterprise network;
- Maximize the functionality of the State's information technology investment; and,
- Allow the development of open systems client/server computing that encourages connectivity, portability, scalability, and interoperability.

B. To establish a Personal Computer (PC) equipment replacement and upgrade standard for the State of Nevada in order to utilize the benefits of next-generation office environments, simplify technical support issues, and increase the State's ability to deploy new solutions to business problems.

2.0 SCOPE

A. The policies set forth in this standard apply to all agencies of the Executive Branch and to all other agencies that wish to utilize the enterprise information transport (SILVERNET) with the exception of the University and Community College System of Nevada (UCCSN) and the Nevada Criminal Justice Information Computer System.

B. The standards set forth in this document will be used as a guideline to initiate replacement of PCs throughout the enterprise:

- Before the point of obsolescence,
- At the point in time when it is most cost effective, and
- At the point in time when it will enable the State to gain maximum advantage from its considerable investment in information systems.

3.0 EFFECTIVE DATES
The requirements of this standard are effective 90 days after sign-off by the Governor or his designee.

4.0 RESPONSIBILITIES

A. All microcomputer hardware purchases must be approved by the Department of Information Technology (DoIT) and the Department of Administration, Budget Division. Purchases must be made from the Department of Administration, Division of Purchasing's open term contracts.

B. These standards apply to all agencies of the Executive Branch and to all other agencies that wish to utilize the enterprise information transport (SILVERNET) with the exception of the University and Community College System of Nevada (UCCSN) and the Nevada Criminal Justice Information Computer System.

5.0 RELATED DOCUMENTS

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NRS 242.115 and NRS 151

6.0   STANDARD

Hardware Maintenance
Contractors normally provide warranties with new computer hardware. If available at the time of purchase, a hardware maintenance agreement should be purchased to cover the hardware's expected life based on the State's Computer Hardware phased replacement program (e.g. purchase a maintenance agreement that provides a total of four years of coverage for a personal computer).

Some sort of Anti-virus program is required for all computers including Personal Computer/LAN Workstations, Portable Computers, File Servers, and CADD Class Workstations.

Personal Computer/LAN Workstation Minimum Hardware Requirements
To ensure that Personal Computers and LAN Workstation equipment that is purchased by the State continue to perform to adequate levels of performance throughout the life cycle of the unit it is required that the processor revision and memory of the unit requested be adequate to run a standard operating system and an office suite, at a minimum. The unit must be serviceable by State technical support and include both a fixed disk large enough to support the current operating system and an office suite with at least a forecast 50% growth in size over the life cycle of the unit. A minimum of one CD-ROM device shall be included in the unit for installing upgrades or patched necessary for the maintenance of the system. A network card must be included with any unit purchased to at a minimum allow for updates to the anti-virus software required to be installed on all Personal Computers or LAN Workstations in the State. Any unit purchased must have a surge suppression device included to protect the unit from electrical damage.

Portable Personal Computers must conform to the above as well as include a carrying case with space for any attachments included with the unit. If the Portable is to be used as a workstation is must include either a docking station or port replicator with a keyboard, mouse and monitor.

File Server Minimum Hardware Requirements
To ensure that File Server equipment that is purchased by the State continue to perform to adequate levels of performance throughout the life cycle of the unit it is required that the processor revision and memory of the unit requested be adequate to run a standard network server operating system, at a minimum. The unit must be serviceable by State technical support and include both a fixed disk or fixed disk array, large enough to support the current operating system and data storage with at least a forecast 50% growth in size over the life cycle of the unit. A minimum of one CD-ROM device shall be included in the unit for installing upgrades or patched necessary for the maintenance of the system. A network card must be included with any unit purchased to at a minimum allow for file and print services to be performed and updates to the anti-virus software required to be installed on all servers in the State. Any unit purchased must have a uninterruptible power supply included to protect the unit from power outage and electrical damage. For protection against power supply failure it is recommended that all servers include a redundant power supply. For protection against excessive heat servers should include redundant fans. For protection against data loss it is recommended that servers be configures with multiple drives in a RAID 5

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configuration. In all cases servers need some type of backup and recovery software to recover data from tape or other media.

Cycle of Replacement

It is the State's policy to cycle replaced computers through the major classifications of technology users (see Section 2.5.6). PCs that have been replaced and are no longer appropriate for one classification of technology user should be used to upgrade and replace a PC with older technology within the agency. In this manner, the PC with the oldest technology in the agency is phased out and the agency can continue to benefit from their investment in PCs.

It is the State's policy to replace PCs with the latest technology rather than to apply major upgrades to existing PCs. Current research indicates that:

- Upgrading is expensive because, more often than not, multiple system components must be upgraded in order to achieve the intended performance improvement.
- The purchase price of the various hardware components needed to accomplish an upgrade will exceed the purchase price of a new computer.
- The cost of labor to install an upgrade to existing hardware will far exceed the cost of labor to install a new PC.
- Upgraded PCs have uncertain maintenance profiles and support costs.
- Upgraded PCs have added administrative complexity.
- There is no increase in residual value of upgraded PCs.

Upgrading PCs tends to increase the overall complexity in the installed enterprise hardware base.

Classifications of Technology Users

There are three major classifications of technology users defined as:

- **Leading Edge Technology Users/Power Users**
  Those agencies and individuals within the agency who need to be at the forefront of technology in order to:

  1) Become the pilot agencies for other members of the enterprise network, or
  2) Interface with other entities, agencies and governments where such interface requires the utilization of the latest technology, or
  3) Regularly use very large spreadsheets, CAD/CAM, or other CPU or memory intensive applications.

- **Mainstream Technology Users**
  Those agencies and individuals within the agency whose daily business operations require the utilization of information technology. They have a standardized suite of applications on their desktops (e.g., word processing, spreadsheet, presentation); customized applications beyond the standardized suite; may use servers for database and decision-support; and often have access to department-specific applications, e-mail, Intranets and the Internet.

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- **Conservative Technology Users**
  Those agencies and individuals within the agency whose daily business operations require the utilization of technology for everyday office functions only. They have a standardized suite of applications, access to file and print servers, and in some cases, access to some host-based legacy applications using terminal emulation programs.

Replacement Schedule
The following is a general guideline for replacing PCs. Agencies should consult with DoIT for assistance in determining their specific replacement needs. Replacement schedules vary according to the three major classifications of technology users:

- **Leading Edge Technology Users**

  1) Should maintain no more than two revisions behind the current state standard PC or workstation as specified by DOIT and State Purchasing
  2) Should consider replacing PCs every second or third year, depending on applications in use.

- **Mainstream Technology Users**

  1) Should maintain no more than two revisions behind the current state standard PC or workstation as specified by DOIT and State Purchasing
  2) Should consider replacing PCs every four years.

- **Conservative Technology Users**

  1) Should maintain no more than two revisions behind the current state standard PC or workstation as specified by DOIT and State Purchasing.
  2) Should consider replacing PCs every five to six years.

- **Departmental Average**

  1) For budgeting purposes, a department should separate their computers and users into the above categories. DoIT has found that this often results in a departmental replacement average of 20% to 25% per year.

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7.0 EXCEPTIONS/OTHER ISSUES

Purchases must be made from the Department of Administration, Division of Purchasing's open term contracts unless a specific departure has been requested in writing with justification and such departure has been authorized in writing by both DoIT and Purchasing.

8.0 DEFINITIONS/BACKGROUND

Nevada Revised Statute (NRS) 242.115 requires the Planning and Research Unit of the Planning and Programming division of the Department of Information Technology (DoIT) to develop guidelines and procedures for the procurement and maintenance of the information systems of the Executive Branch of government.

NRS 242.151 requires the Director of the Department of Information Technology to advise agencies regarding the policy for Information Technology as that policy relates to items such as standards and criteria for the selection, location, and use of information systems.

Approved By		
Title	**Signature**	**Date**
Tech Standards & Architecture Committee Chair	Signature on File	12/11/03
NV IT Operations Committee Chair	Signature on File	12/11/03
Governor/Governor's Representative	Signature on file	12/11/03

Document History		
Revision	**Date**	**Change**
A	11/21/2000	Initial release (CH_STANDARD_2.3.1).
B	10/22/2001	Annual Update (CH_STANDARD_2.3.2)
C	12/11/2003	Updated, changed to Control Number 5.02 and combined 2.5 into text.